T-17-1 – "Evaluation of the Effects of Habitat Management Practices on Avian and Herpetofaunal Communities in Selected Forests of Louisiana"

Abstract: Prior studies on avian response to forest management suggest regional and site-specific effects of birds to management practices should be studied. Few studies have evaluated the effects of forest management on herpetofauna. The objectives of this study were to 1) determine baseline data on relative abundance of birds, reptiles, and amphibians on select Wildlife Management Areas (WMAs); 2) Quantify micro-habitat requirements of select species; and 3) determine the effects of silivcultural practices on birds, reptiles, and amphibians. The WMAs chosen for study were Pomme de Terre WMA, Tunica Hills WMA, Spring Bayou WMA, and Pearl River WMA.

Anuran chorus counts similar to those used by the National Amphibian Monitoring Program were used to survey frogs. Other herpetofauna were surveys using a combination of drift fence arrays, cover boards, and Visual Encounter Surveys. Birds were sampled using multiple point count surveys. Vegetation was sampled via point-center-quarter plots along transects. Vegetation parameters characterized included canopy closure, distance to nearest shrub, snag density, and density of coarse woody debris.

The most abundant herpetofauna included Spring peeper, upland chorus frog, southern leopard frog, American bullfrog, and green treefrog. No amphibian or reptile species of concern (as listed in the Louisiana Wildlife Action Plan) was observed by any method.

The most abundant birds species observed included Carolina Wren, Northern Cardinal, White-eyed Vireo, and Red-bellied Woodpecker. Two Louisiana species of concern—the Prothonotary Warbler and Yellow-billed Cuckoo—were also among the more abundant species observed.

Amphibian chorus counts were effective at detecting most frog species but were limited ability to compare management practices. Other herpetofaunal sampling methods were effective at detecting less vocal species. However, these methods are highly labor intensive, tend to yield small detection numbers, and are ineffective in areas prone to flooding.

Species-specific models of habitat preference could be developed for 11 species (3 spp. at Tunica Hills WMA, 12 spp. at the remaining WMAs, with Kentucky Warbler represented in both sets of models). Of the 12 species modeled, 6 are listed as Louisiana species of concern. Species of concern for which models were developed include: Kentucky Warbler (all WMAs); Worm-eating Warbler (Tunica Hills WMA); Hooded Warbler, Northern Parula, Yellow-throated Vireo, and Painted Bunting (Spring Bayou, Pomme De Terre, and Pearl River WMAs). Hooded Warbler and Northern Parula were too abundant at Tunica Hills WMA for models to be developed. Several other bird species could not be modeled because they were ubiquitous across habitats or the species occurred too frequently to detect key habitat features.

Where modeling was possible, the most important habitat characteristics included: basal area, importance value of canopy species, and understory density. The fact that many species, including some species of concern, were too abundant on WMAs to be modeled effectively suggests that forest management on the 4 WMAs is providing breeding habitat for a diverse avian community.

The grant was closed on 30 September 2006.

For more information about State Wildlife Grant T-17, or to obtain copies of interim or final reports, please contact the State Wildlife Grant Coordinator, LDWF Fur & Refuge Division.